

# CMPE343 – Database Management Systems and Programming I

Spring 2024-2025

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## Homework 1

**THIS HOMEWORK WILL NOT BE GRADED. USE IT AS A  
PREPARATION TO THE MIDTERM EXAM**

**WE WILL SOLVE IT IN THE CLASS BEFORE THE MIDTERM EXAM  
WEEK!**

**Q1. Entity Relationship Diagram (ERD) design. According to the description below, design the ERD. Please also show cardinality constraints on your ERDs [25 Marks].**

Nurses, doctors and patients are Persons who has person\_id, name and date-of-birth. Nurses and Doctors have speciality. In addition, Nurses and Doctors belong to one department. Departments have department\_id, building and dept\_name. Nurses may take place in patient visits. Doctors are examining many patients but a patient can see only one doctor. Patients may get medical or operational treatments. For those patients who need to be treated with medication, medication details are included such as medication name, interval.

**Q2. DBMS design and SQL queries: Use the table schema and the given records below for the following questions. You have to implement these tables and DDL/DML/SQL queries in MySQL DBMS or sqllite editor online. For each question, write DDL/DML/SQL QUERIES and find/show their answers.**

Tutor(tid, t\_fname, t\_lname, hourly\_wage)

Student(sid, s\_fname, s\_lname, address, city)

Course(course\_code, title, credit, semester)

Takes(sid, course\_code)

Teaches(tid, course\_code, hours)

### **Tutor**

tid	t_fname	t_lname	hourly_wage
1	Alex	Jackson	40
2	David	Lewis	10
3	Sue	White	20

### **Student**

sid	s_fname	s_lname	Address	city
1111	Jane	Morgan	Yasemin sokak, Gonyeli	Nicosia
2222	Katie	Smith	Gul sokak, Hamitkoy	Kyrenia
3333	Leslie	Carr	Zeytin sokak, Catalkoy	Kyrenia
4444	Max	McKane	Lale sokak, Küçükaymaklı	Nicosia

### **Course**

course_code	title	credit	semester
CMPE343	DBMS I	4	Fall
CMPE344	DBMS II	4	Spring
MATH101	Calculus I	4	Fall
MATH121	Linear Algebra	2	Fall
CMPE214	Visual Programming	3	Spring

**Takes**

sid	course_code
1111	CMPE343
1111	CMPE214
2222	MATH101
2222	MATH121
4444	CMPE214
4444	CMPE344

**Teaches**

tid	course_code	hours
1	CMPE343	3
1	CMPE344	3
2	MATH101	3
2	MATH121	2
3	CMPE214	3

Q2-1) Using **DDL statements (create table)**, create tutor, student, course, takes and teaches tables. Make sure that you specify primary keys, foreign keys, unique and not null values **[20 Marks]**.

Q2-2) Using **insert into DML statements**, add the given records above to the designated tutor, student, course, takes and teaches tables. **[5 Marks]**

Q2-3) List all information about students who have taken a course called '**DBMS**' (title) **[5 Marks]**.

Q2-4) Find the **last name of all tutors** whose hourly wage is **greater than 15** **[5 Marks]**.

Q2-5) Find the **first name of all students** whose address contains the word '**koy**' **[5 Marks]**.

Q2-6) Display course\_code of courses which have been taken by a student '1111' **[5 Marks]**.

Q2-7) Display the first, last name and address of all students **who live in Nicosia** **[5 Marks]**.

Q2-8) List course codes of courses that have **4 credits and** taught in **Spring Semester** **[5 Marks]**.

Q2-9) List course\_codes of the courses that has **2 hours** lectures **[5 Marks]**.

Q2-10) **Add a new column** to the student table called **CGPA** that has **float datatype** **[5 Marks]**.

Q2-11) Using **DML based on sid**, add the following CGPA values into the student table **[10 Marks]**.

1111→ 2.88

2222→ 3.14

3333→ 2.05

4444→ 3.77